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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Applicant(s):	Patrick C. St. Germain et al.	
Application No.	10/717,019	
Filed:	November 19, 2003	Group Art Unit: 3654
For:	WEB TENSIONING DEVICE WITH PLURAL CONTROL INPUTS	
Examiner:	Scott J. Haugland	Attorney Docket No. SSS-109

AMENDED BRIEF ON APPEAL

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This is an appeal from the final rejection of claims 10-14 inclusive, in the above-identified application. Appeal Fee in the amount of $250.00 (Check No. 029841) has been submitted with the Brief on Appeal as originally filed. Kindly charge any fee deficiency to our Deposit Account No. 15-0508.

1. **Real Party in Interest.**

This application is assigned to Specialty Systems Advanced Machinery, Inc.

2. **Related Appeals and Interferences.**

There are no related appeals or interferences.

3. **Status of Claims.**

Claims 10-14, inclusive, are rejected. Claims 1-9 have been cancelled. The claims on appeal are presented in Claims Appendix hereto. Claim 10 is an independent claim. Claims 11-14 depend directly or indirectly on claim 10. Claims 10-14, inclusive, are on appeal.

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4. Status of Amendments.

A Response to the Final Office Action was filed and has been entered of record. No claims were amended subsequent to the Response to the final rejection. Applicants Response overcame the rejection under 35 U.S.C. 112.

5. Summary of Claimed Subject Matter

Independent claim 10 defines a web tensioning device (FIG. 1; p. 1, l. 23-26) suitable for maintaining web tension within predetermined limits without reliance on gravitational forces.

Specifically, claim 10 calls for a base (p. 1, l. 27), a dancer arm (p. 1, l. 27) having a fixed end position pivotably mounted to the base (p. 2, l. 10; p. 4, l. 18) and a free end portion having a dancer rotatably mounted thereon (p. 4, l. 13-19). An angular position sensor (p. 2, l. 10-11) is provided for coaction with the fixed end portion of the dancer arm. The angular position sensor indicates relative angular displacement of the dancer arm as a web in contact with the dancer is maintained in tension (p. 1, l. 20-25). A controller (FIG. 1, Item 34) is provided for generating a control output signal in response to acceleration of the dancer arm due to changes in the web tension as detected by the angular position sensor (p. 4, l. 32-33). A servo motor (FIG. 1, Item 36) is operably associated with the dancer arm by pivotably positioning the dancer arm by application of a compensating torque component in response to the control out put signal, the applied compensating torque component being substantially the same as the force of the dancer arm acceleration (p. 2, l. 14-20; p. 4, l. 26-30; p. 5, l. 3-10).

Claim 11 depends on claim 10 and specifies further that the angular position sensor is an encoder operably associated with the fixed end portion of the dancer arm and senses relative angular displacement of the cancer arm (p. 2, l. 8-12; p. 4, l. 20-22).

Claim 12, in turn, depends on claim 11 and specifies further that the encoder is an incremental rotary optical encoder (FIG. 1, Item 30; p. 4, l. 20-24)..

Claim 13 depends on claim 10 and specifies that the servo motor is an electric motor (FIG. 1, Item 36; p. 4, l. 8-12).

Claim 14, in turn, depends on claim 13 and specifies further that the electric motor is a limited angle electric motor operably associated with dancer arm for pivoting the

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dancer arm by application of torque in response to the control output signal (p. 4, l. 26 - p. 5, l. 3).

6. Grounds of Rejection to be Reviewed on Appeal

(a) Claims 10, 11, 13 and 14 are rejected under 35 U.S.C. 103(a) as unpatentable over Cote (U.S. Patent No. 6,547,707) in view of Rajala (U.S. Patent No. 5,659,229).

(b) Claim 12 is rejected under 35 U.S.C. 103(a) as unpatentable over Cote (U.S. Patent No. 6,547,707) in view of Rajala (U.S. Patent No. 5,659,229) as applied to claims 10 and 11, above, and further in view of Kawabata et al. (U.S. Patent No. 6,024,319).

7. Argument

(a) Claims 10, 11, 13 and 14 Would Not Have Been Obvious Under 35 U.S.C. 103(a) to One of Ordinary Skill Based on the Teachings of Cote in view of Rajala

The test for obviousness is what the combined teachings of the references would have suggested to one of ordinary skill in the art. *In re Young*, 927 F. 2d 588, 18 USPQ2d 1089 (Fed. Cir. 1991). In order to establish a *prima facie* case for obviousness, all claim limitations must be taught or suggested by the prior art. *In re Royka*, 180 USPQ 580 (CCPA 1974). Additionally, "All words in a claim must be considered in judging the patentability of that claim against the prior art". *In re Wilson*, 165 USPQ 494, 496 (CCPA 1970). Furthermore, there must be a teaching in the references themselves that would have motivated one of skill in the art at the time the invention was made to combine the references with a reasonable expectation of success. *In re Vaeck*, 947 F.2d 488, 493, 20 USPQ2d 1438, 1442 (Fed. Cir. 1991). That is not the case here. The combination of the applied references would not have rendered the present claims obvious to one of ordinary skill in the art at the time the claimed invention was made.

In particular, the Examiner recognizes at page 3 of the Office Action dated 29 December 2005 that U.S. Patent No. 6,547,707 to Cote does not disclose that the torque applied by the servo motor is substantially the same as the force of the dancer arm

acceleration, or that it is increased or reduced by this force, yet erroneously contends that this deficiency is remedied by the Rajala reference. The Examiner's interpretation of Rajala is incorrect. Rajala does not teach control of a dancer roll so as to compensate for the effects of acceleration of the dancer roll by detecting the magnitude of the acceleration force and applying a torque to the dancer arm. Instead, Rajala monitors web tension incrementally (col. 3, lines 1-2; col. 5, lines 41-57), as well as dancer position vertically (Fig. 2; col. 7, lines 40-49), dancer roll translation velocity (col. 8, lines 51-54), and web velocity (col. 8, lines 60-65). The Rajala disclosure contains no suggestion whatsoever to measure the acceleration of a pivotably mounted dancer arm, or any means for doing so.

Rajala does not show or suggest an angular position sensor. Replacement of the piston/cylinder assembly of Cote (Col. 3, lines 38-43) with any of the complex web tension sensors described by Rajala, would have resulted in an inoperable device. The dancer 24 of Rajala moves up and down only vertically as can be readily seen in Fig. 2. The dancer 11 of Cote pivots in response to the piston/cylinder assembly 17 shown in Fig. 1. The respective mechanisms shown by Cote and Rajala clearly are not interchangeable. One of ordinary skill would not have had any motivation whatsoever even to attempt to do so, much less an expectation of success. If indeed Cote shows an angular position sensor as contended by the Examiner, one of ordinary skill would have had no reason to replace it with the complex sensors described by Rajala. Cote does not teach or describe, however, an angular sensor "used to determine the position of the dancer roll" as contended by the Examiner. Instead, the dancer roll in Cote is positioned as required to maintain a predetermined tension in the web based on the caliper of the web material. (Col. 1, lines 54-58).

The Examiner's own, unsupported testimony that "[t]he force applied to the dancer roll of the modified apparatus of Cote is seen to be the same as that in Applicant's apparatus" is of no moment. Such unsupported testimony provides no support for rejection of the claims here under consideration.

The fact remains that neither Cote nor Rajala shows or suggests any means for the detection of the acceleration of the dancer arm and for the utilization of the detected acceleration to apply a compensating torque component therefor.

With regard to claim 11, the Examiner's position is not well taken. Claim 11 calls for a particular type of encoder, to wit, one that senses relative angular displacement of

the dancer arm. Neither Cote nor Rajala show or suggest such an encoder. In Rajala there is no angular displacement of the dancer (see Fig. 2). There is no basis in the record for the unsupported assertion that "any position sensor or including that taught by Rajala is seen to be an encoder." There is no evidence of record that one of ordinary skill would see it that way.

With regard to claim 13, this claim calls for an electric servo motor. Cote does not show or suggest any such device. Cote at Col. 3, line 33 only mentions an electric spindle drive.

With regard to claim 14, this claim depends on claim 13 and calls for an electric servo motor which is a limited angle electric motor operably associated with the dancer arm for pivoting the dancer arm by the application of torque in response to the control output signal that is generated in response to the acceleration of the dancer arm. The applied references neither show nor suggest such an apparatus. The Examiner's unsupported testimony as to what would have been obvious cannot possibly support the rejection of claim 14.

(b) Claim 12 Would Not Have Been Obvious Under 35 U.S.C. 103(a) to One of Ordinary Skill Based on the Teachings of Cote in view of Rajala and Kawabata et al.

Claim 12 is dependent on claim 11 and specifies that the angular position sensor is an incremental rotary optical encoder.

Cote does not disclose any type of angular position sensor, much less an incremental rotary optical recorder. The Examiner agrees. Rajala also does not teach such an encoder. Kawabata et al. does not teach the use of an incremental rotary optical encoder either. Kawabata, et al. only teaches the use of a distance sensor, not an optical sensor, for its system. See for example, col. 4, lines 11-18.

None of the aforementioned deficiencies of Cote and/or Rajala as references against claim 12 is cured by Kawabata et al.

Furthermore, Kawabata, et al. is not combinable with Cote because Cote adjusts web tension by positioning the arm 14 pneumatically, whereas Kawabata, et al. teaches tension adjustment by repositioning the rotational centers of the guide rollers and the dancer rollers relative to one another so as to change the force components due to gravity. An

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entirely different tensioning mechanism is involved. Additionally, nothing in Kawabata et al. would have suggested to one of ordinary skill to replace the pressure transducer 19 of Cote with an incremental rotary optical encoder because the Kawabata et al. reference neither shows nor suggests the use of such an encoder.

Even if the teachings of Cote, Rajala, and Kawabata, et al. are deemed combinable, arguendo, they all show devices that monitor web tension and rely on a tension determination for adjustment. In contradistinction, the present web tensioning device does not monitor web tension, but instead provides a device that maintains a predetermined web tension by detecting and countering acceleration of a dancer arm that engages the web. This is clearly an unobvious departure from the web tensioning devices of the prior art. The principle of operation clearly is different.

8. Conclusion

The rejection of claims 10-14, inclusive, is without merit for reasons discussed at length hereinabove. Reversal of the Final Rejection is warranted.

Respectfully submitted,

September 13, 2006

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CERTIFICATE OF FACSIMILE TRANSMISSION

I hereby certify that this AMENDED BRIEF ON APPEAL, together with appendices, is being transmitted by facsimile transmission to Fax No. 571-273-8300 on September 13, 2006.

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Claims Appendix

Claim 10. A web tensioning device which comprises:

a base;

an angular position sensor;

a dancer arm for engaging the web to be tensioned, having a free end portion with a dancer rotatably mounted thereon and a fixed end portion pivotably mounted to the base so as to coact with the angular position sensor and indicate relative angular displacement of the dancer arm as a web in contact with the dancer is maintained in tension;

a servo motor operably associated with the dancer arm for pivotally positioning the dancer arm by application of a compensating torque component in response to a control output signal; and

a controller for generating the control output signal in response to acceleration of the dancer arm due to changes in web tension as detected by the angular position sensor;

the applied compensating torque component being substantially the same as force of the dancer arm acceleration.

Claim 11. The web tensioning device in accordance with claim 10 wherein the angular position sensor is an encoder operably associated with the fixed end portion of the dancer arm and senses relative angular displacement of the dancer arm.

Claim 12. The web tensioning device in accordance with claim 11 wherein the encoder is an incremental rotary optical encoder.

Claim 13. The web tensioning device in accordance with claim 10 wherein the servo motor is an electric motor.

Claim 14. The web tensioning device in accordance with claim 13 wherein the servo motor is a limited angle electric motor operably associated with the dancer arm for pivoting the dancer arm by application of torque in response to the control output signal.

Evidence Appendix

None.

Related Proceedings Appendix

There are no related proceedings.